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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,164	07/14/2006	Ramon Guixa Arderiu	2273-0139PUS1	5625
2292 7590 03/09/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER DUONG, DIEU HIEN				
ART UNIT 2821		PAPER NUMBER		
NOTIFICATION DATE 03/09/2009		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary****Application No.**

10/586,164

**Applicant(s)**

GUIXA ARDERIU, RAMON

**Examiner**

DIEU HIEN T. DUONG

**Art Unit**

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS-100)  
Paper No(s)/Mail Date 07/14/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Status of Application***

1. This Office Action is a response to Applicants' Preliminary Amendment filed on 07/14/2006. In virtue of this communication, claims 1-20 are currently presented in the instant application.

***Information Disclosure Statement***

2. The information disclosure statement(s) (IDS) submitted on 07/14/2006 in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is considered by the examiner.

If applicant is aware of any prior art or any other co-pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.97 to disclose the same.

***Specification***

3. The specification is accepted as part of the formal application.

Applicant cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features as set forth below must be shown or canceled from the claims. No new matter should be entered:

- a) Radome, in claim 3

- b) Cables and transformers (claim 4)
- c) Array of antennas and a small bar or metal strip (claim 8)
- d) The protective layer of the antenna (claim 10)

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1,

Lines 1-2, the recitation "Cavity antenna excited by one or several dipoles in a single piece, where the antenna is formed by a cavity in which this single piece is secured comprising one or several dipoles" is unclear. It is not clear what it is meant by "one or more dipoles in a single piece". Also, it is not clear that "one or several dipoles" in line 2 is the same or difference with "one or several dipoles" in line 1. If they are the same, it should be changed to "the dipole or the several dipoles".

Lines 3-4, the recitation "the antenna has a metallic plate mounted on an element which excites the cavity (the dipole or the dipoles)" is unclear. It is not clear what element is "an element excites the cavity".

Lines 4-5, the recitation "said plate being secured and connected electrically to the base of said excitation element in a single piece, to the cavity or to any other element connected to earth" is unclear. It is not clear for the reasons set forth below:

a) There is insufficient antecedent basis for the limitation "the base" in the claim.

b) There is insufficient antecedent basis for the limitation "said excitation element in a single piece" in the claim.

- c) What element does the "other element" refers to?

Claim 2 is rejected since it is dependent on indefinite claim 1.

Regarding claim 3,

Lines 1-2, the recitation "the metallic plate mounted on the element which excites the cavity" is unclear. It is not clear which element is "the element excites the cavity".

Line 6, there is insufficient antecedent basis for the limitation "the radome" in the claim.

Regarding claim 4, lines 2-4, the recitation "at the input of the dipoles the connection of standard coaxial cable is carried out directly, without the need to interpose transformers, lengths of cable of different characteristic impedance or carry out any modification in said cables to adjust the input impedance of the antenna" is unclear. It is not clear for the reasons set forth below:

- a) What it is meant by "the connection of standard coaxial cable is carried out directly".
- b) What does the phrase ", lengths of cable of different characteristic impedance or carry out any modification in said cables to adjust the input impedance of the antenna" refer to?

Claim 5 is rejected since it is dependent on indefinite claim 1

Regarding claim 6, lines 2-3, the recitation "the metallic plate is secured on the element which excites the cavity by means of rods" renders the claimed indefinite since it is not clear what element is "the element excites the cavity".

Regarding claim 7, lines 2-3, the recitation "characterized in that to house the bottom end of the rods on the base of the element which excites the cavity some expansions or bosses emerge" renders the claimed indefinite since it is not clear what the phrase " the base of the element which excites the cavity some expansions or bosses emerge" refers to.

Regarding claim 8, lines 1-4, the recitation "Cavity antenna excited by one or several dipoles in a single piece according to claim 1 characterized in that on the metallic plate of one or more antennas like those of the invention in an array of said antennas a small bar or metal strip can be mounted" is unclear. It is not clear for the reasons set forth below:

- a) What it is meant by "one or more antennas like those of the invention".
- b) The term "can be" is not a positive word for the claimed invention.

Regarding claim 9, line 4, there is insufficient antecedent base for the limitation "the protective enclosure" in the claim.

Regarding claim 10, lines 2-3, there is insufficient antecedent base for the limitation "the protective layer" in the claim.

Claim 11 is rejected since it is dependent on claim 10.

Regarding claim 12, line 2-3, the recitation "in an array of said antennas all the cavities and the elements which excite them are identical" is unclear.

- a) What the word "them" refers to.
- b) What elements are "the elements which excite them".

Regarding claim 13, lines 2-3, the recitation "the whole structure of an array, consisting of an array of antenna like that of invention" is unclear. It is not clear what the phrase "like that of the invention" refers to.

Claim 14 is rejected since it is dependent on the indefinite claim 13.

Claims 15-16 is rejected since it is dependent on claim 1.

The deficiencies found in claims 17-20 are required similar clarifications to claim 8.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Bisiules et al. (US 2004/0263392 A1), hereinafter "Bisiules".

Regarding claim 1, as best understood, Bisiules discloses, in Figures 1 and 12, cavity antenna excited by one or several dipoles in a single piece (3, Figure 1), where the antenna is formed by a cavity (101, Figure 12) in which this single piece is secured comprising one or several dipoles, characterized in that the antenna has a metallic plate (2, Figure 1) mounted on an element which excites the cavity (the dipole or the dipoles), said plate being secured and connected electrically to the base of said excitation element in a single piece, to the cavity (101, Figure 12) or to any other element connected to earth.



***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bisiules et al. (US 2004/0263392 A1), hereinafter "Bisiules".

Regarding claims 2-3 and 9, Bisiules discloses, in Figures 1 and 12, the metallic plate (2) mounted on the element (3) which excites the cavity is located at a distance "d" with respect to the back wall of the cavity, which allows the input impedance of the antenna to be adjusted, based on the modification of the distance "d", without the need to modify any characteristic of the element which excites the cavity or of the cavity, as well as the partial suppression of the reflections

Bisiules does not the metallic plate is secured at a distance less than  $\lambda/2$  with respect the back wall of the cavity, where  $\lambda/2$  is the wavelength of the centre frequency of the working band;

However, such difference is not patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the location of the metallic plate with respect to the back wall of the cavity to achieve desired radiation characteristic based on particular application or environment of use. Therefore, to employ having the distance as claimed invention would have been obvious to person skill in the art of antenna.

Note that: Bisiules does not disclose a protective enclosure of the antenna or radome. However, it would have been obvious to person skill in the art at the time the invention was made to include the enclosure or radome in the antenna system of Bisiules to protect the antenna from the environment.

Regarding claim 4, as applied to claim 1, Bisiules discloses, in Figures 1, 12 and par. [0099], characterized in that at the input of the dipoles (3) the connection of standard coaxial cable is carried out directly, without the need to interpose transformers, lengths of cable of different characteristic impedance or carry out any modification in said cables to adjust the input impedance of the antenna.

Regarding claim 5, as applied to claim 2, Bisiules discloses, in Figures 1, 12 and par. [0082]-[0083], wherein with different geometric forms of the metallic plate (2), it is possible to control and adjust in a simple manner the level of crosspolar polarization and the decoupling between dipoles.

Regarding claim 6, as applied to claim 2, Bisiules discloses, in Figures 1 and 12, wherein the metallic plate (2) is secured on the element which excites the cavity by means of rods.

Regarding claim 7, as applied to claim 6, Bisiules discloses, in Figures 1 and 12, wherein to house the bottom end of the rods on the base of the element which excites the cavity some expansions or bosses emerge.

Regarding claims 8 and 17-20, Bisiules discloses, in Figures 1 and 12, on the metallic plate of one or more antennas like those of the invention in an array of said antennas a small bar or metal strip can be mounted whereby a better reception is

achieved of the signals which are received from the side, the misalignment effect of the polarization due to the lateral application of the signals at the antenna being offset with the aforementioned bars and strips.

Regarding claims 10-11 and 13-14, Bisiules discloses every feature of claimed invention except for the cavity being formed in steel.

However, such difference is not patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to select a well known material, such as steel to form the cavity of the antenna and it has been held to be within the general skill in the art of a worker to select known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Note that: Bisiules does not disclose the electrolytic plating being in copper and while brass. However, this forming process or step is not germane to the issue of patentability of the device itself. The cavity (cavities) would have been considered as a part of the antenna system resulting from any manufacturing technique. Therefore, to form the cavity (cavities) by electrolytic plating process or any other process would have been deemed obvious to person skill in the art of antenna.

Regarding claim 12, as applied to claim 8, Bisiules discloses, in Figures 1 and 9, characterized in that in an array of said antennas all the cavities and the elements which excites them are identical.

Regarding claims 15-16, Bisiules discloses every feature of claimed invention except for wherein by adjusting the profiles and the heights of the side walls of the

cavity as well as the dimensions of the cavity different radiation patterns are formed, with different characteristics such as the main beam width. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the profiles, the height, the dimension of the cavity to achieve desired the radiation characteristic of the antenna and such modification would have involved a mere change in dimension. A change in dimension is generally recognized as being within the level of ordinary skill in the art of antenna.

***Inquiry***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIEU HIEN T. DUONG whose telephone number is (571)272-8980. The examiner can normally be reached on Monday - Friday, from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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